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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,422	01/22/2002	Simon Peter Valentine	3Com-95	5221

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EXAMINER	
SHINGLES, KRISTIE D	

ART UNIT	PAPER NUMBER
2141	

DATE MAILED: 08/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/054,422	VALENTINE ET AL.	
	Examiner	Art Unit	
	Kristie Shingles	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-13* is/are pending in the application.

4a) Of the above claim(s) *9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant has amended claims 1-8 and 10-13. Claim 9 has been cancelled. Claims 1-8 and 10-13 are pending.

Drawings

1. The proposed drawing corrections filed 6/13/2005 have been accepted by the Examiner. The corrections to the drawings will not be held in abeyance.

Specification

2. The proposed specification corrections filed 6/13/2005 have been accepted by the Examiner. The corrections to the specification will not be held in abeyance.

Response to Arguments

3. Applicant's arguments (see Remarks, pages 13-16) filed 6/13/2005 with respect to the rejections of claims 1 and 9 under 35 U.S.C 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of *Zeldin et al* (USPN 5,708,772).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims **1-8 and 10-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kracht* (USPN 6,377,987) in view of *Zeldin et al* (USPN 5,708,772).

a. **Regarding claim 1**, *Kracht* teaches a method and computer readable medium including a computer program for determining the topology of a network when a network tree, built from data relating to discovered devices of the network, includes one or more unresolved branches, the method comprising: for each unresolved branch of the network tree, attempting to determine the type of each of the discovered network devices on the branch (col.4 lines 30-40 and col.7 lines 26-45); if the type of each discovered network device on the branch is determined to be an endstation type, inferring that an undiscovered connecting device is present on the branch (Figures 6a-6c, col.4 lines 55-60, col.5 lines 2-7, col.12 line 55-col.13 line 58).

Kracht fails to explicitly teach if the type of at least one discovered network device on the branch is not an endstation type, leaving the topology of the branch unresolved. However, *Zeldin et al* teach the scanning an unresolved link to determine if the discovered nodes on the branch are edge devices, destination nodes or source nodes. And from this information, determining if there is only an edge node present, a bridge cloud linking segments, or more nodes on the branch. The branch will remain unresolved with black box indicators until the devices on the branch are resolved (col.9 line 11-col.10 line 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Kracht* and *Zeldin et al* for the purpose of determining topology information from connection data, whereas detecting the connectivity relationship of devices and nodes, allows for more accurate inferences regarding the topology. Therefore, it would have been obvious to leave an unresolved branch/segment of the network unresolved if an edge/endstation type of device was not detected on the branch, because inferences would indicate the presence of an edge/endstation type of device, but until it is actually discovered and resolved, it must still remain unresolved.

a. **Claim 11** contains limitations that are substantially equivalent to claim 1 and is therefore rejected under the same basis.

b. **Regarding claim 12,** *Kracht* teaches a network management apparatus for determining the topology of a network, the apparatus comprising: a memory for receiving and storing data relating to discovered devices on the network (col.3 lines 55-67); a processor, coupled to the memory, the processor configured to build a network tree using the received data (Figure 8 and col.15 lines 54-57) and, for each unresolved branch of the network tree to attempt to determine the type of each of the discovered network devices on the branch (col.4 lines 30-40 and col.7 lines 26-45); wherein if the type of every discovered network device on an unresolved branch is determined to be an endstation type, the processor infers that an undiscovered connecting device is present on the branch (Figures 6a-6c and col.4 lines 55-60, col.5 lines 2-7 and col.12 line 55-col.13 line 58).

Kracht fails to explicitly teach if the type of at least one discovered network device on the branch is not an endstation type, leaving the topology of the branch unresolved. However, *Zeldin et al* teach the scanning an unresolved link to determine if the discovered nodes on the branch are edge devices, destination nodes or source nodes. And from this information, determining if there is only an edge node present, a bridge cloud linking segments, or more nodes on the branch. The branch will remain unresolved with black box indicators until the devices on the branch are resolved (col.9 line 11-col.10 line 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of *Kracht* and *Zeldin et al* for the purpose of determining topology information from connection data, whereas detecting the connectivity relationship of devices and nodes, allows for more accurate inferences regarding the topology. Therefore, it would have been obvious to leave an unresolved branch/segment of the network unresolved if an edge/endstation type of device was not detected on the branch, because inferences would indicate the presence of an edge/endstation type of device, but until it is actually discovered and resolved, it must still remain unresolved.

c. **Regarding claim 2,** *Kracht* and *Zeldin et al* teach the method as claimed in claim 1, *Kracht* further teaches the method wherein, if an undiscovered network device is inferred to be present on a branch the method further comprises the step of: resolving the topology of the branch by determining that the discovered network devices on the branch are connected to respective ports of the inferred connecting device (Fiugres 6a-6c, col.4 lines 55-60, col.5 lines 2-7 and col.12 line 55-col.13 line 58).

d. **Regarding claim 3,** *Kracht* and *Zeldin et al* teach the method as claimed in claim 1, *Kracht* further teaches the method further comprising the step of: presenting the determined network topology as a network map, the map comprising icons representing network devices and lines representing network links, wherein the inferred connecting device is represented differently from a discovered connecting device (Figure 8 and col.15 line 54-col.16 line 4).

e. **Regarding claim 4,** *Kracht and Zeldin et al* teach the method as claimed in claim 1, *Kracht* further teaches the method wherein the received data comprises address table data for the ports of one or more managed connecting devices on the network, the address table data including the identity of each said port and the identity of other network devices which the port has learned (col.3 lines 55-67, col.4 lines 10-12, col.4 line 60-col.5 line 7 and col.9 lines 4-13, 45-53 and 54-67).

f. **Regarding claim 5,** *Kracht* teaches a method as claimed in claim 4, further comprising the steps, in building the network tree, of selecting a discovered connecting device as a root node, and building a data representation of the tree from the root node (Figure 8), the data representation comprising at least one branch from a respective port of the root node, each

branch comprising the identity of the port and the identity of at least one child node on the branch (col.15 line 54-col.16 line 4).

g. **Regarding claim 6,** *Kracht* teaches a method as claimed in claim 5, wherein after building the network tree, the method comprises the step of: determining whether the topology of one or more branches of the tree is unresolved (col.12 lines 55-67).

h. **Regarding claim 7,** *Kracht* teaches a method as claimed in claim 6, wherein the step of determining whether the topology of one or more branches of the tree is unresolved comprises the steps of: a) selecting a port of the root node; b) considering whether the branch from the selected port has more than one child node, and c) if the branch from the port has more than one child node, determining that the branch is unresolved (Figures 5a-5b and col.11 line 62-col.12 line 30).

i. **Regarding claim 8,** *Kracht* teaches a method as in claim 7, further comprising the step of repeating steps a), b) and c) for each port of each discovered connecting device (Figures 5a-5b and col.11 line 62-col.12 line 30).

j. **Regarding claim 10,** *Kracht and Zeldin et al* teach the method as claimed in claim 1, *Kracht* further teaches the method wherein the network tree is built using the steps of: receiving data relative to discovered devices on the network, and using the received data to build a network tree (Figure 8, col.3 lines 55-67 and col.15 lines 54-57).

k. **Regarding claim 13,** *Kracht and Zeldin et al* teach the network management apparatus as claimed in claim 12, *Kracht* further teaches the apparatus further comprising: means for presenting a network map showing the determined topology of the network selected from the group consisting of a display and a printer (Figures 7-8 and col.17 lines 53-55).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: *Breitbart et al* (USPN 6,697,338), *Compliment et al* (USPN 5,706,440), *Knights et al* (USPN 6,289,375), *Kracht* (USPN 6,516,345) and *Wood* (USPN 6,405,248).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kristie Shingles whose telephone number is 571-272-3888. The examiner can normally be reached on Monday-Friday 8:30-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kristie Shingles
Examiner
Art Unit 2141

kds

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER